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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/101,341	07/08/1998	KENT MALMGREN	000500-128	9545

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EXAMINER

WHITE, EVERETT NMN

ART UNIT	PAPER NUMBER
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1623

DATE MAILED: 07/15/2003

37

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/101,341

Applicant(s)

MALMGREN ET AL.

Examiner

EVERETT WHITE

Art Unit

1623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 April 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 and 19-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 19-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other:

### **DETAILED ACTION**

1. The amendment filed April 4, 2003 has been received, entered and carefully considered. The amendment affects the instant application accordingly:
  - (A) Comments regarding Office Action have been provided drawn to
    - (i) 103(a) rejection, rendered moot by new ground of rejection over newly cited US Patent;
2. Claims 1-16 and 19-21 are pending in the case.
3. The text of those sections of title 35, U. S. Code not included in this action can be found in a prior Office action.
4. The indication of allowable subject matter during the interview dated April 4, 2003 is withdrawn for the reasons disclosed below.

### ***Claim Objections***

5. Claim 9 is objected to because of the following informalities: In Claim 9, line 3, the term "aluminium" should be changed to - - aluminum - -. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

6. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 contains the trademark/trade name Polybrene. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not

Art Unit: 1623

identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a cross-linker and, accordingly, the identification/description is indefinite.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. Claims 1, 3-5, 7-12, 19 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Qin (US Patent No. 5,550,189, newly cited).

Applicants claim a method of producing polysaccharides fibers, comprising the steps of dissolving a polysaccharide in a solvent to form a solution, and spraying the solution into a bath, which contains a water-miscible organic solvent and a cross-linker, wherein the solvent dissolving the polysaccharide is water, and wherein the cross-linker ionically cross-links the polysaccharide. Additional limitations in the dependent claims include specific organic solvents; specific cross-linkers; the cross-linker being a salt; the cation in the salt having a specific valence, being of a specific metal ion; the metal salt of the cross-linker having a specific anion; the method using specific polysaccharides;

Art Unit: 1623

the method further comprising cross-linking the fiber covalently; the method wherein the bath is acidic; the method wherein the polysaccharide fibers precipitate in the bath.

The Qin et al patent discloses a method for preparing modified polysaccharides having improved absorbent properties, wherein the method involves forming a mixture of a modified polysaccharide, water and a crosslinking agent, and recovering the modified polysaccharide from the mixture. Qin et al discloses that the modified polysaccharides suitable for use in their invention comprise a group that includes carboxylated polysaccharides, wherein the polysaccharides may be selected from a group that include cellulose, starch, and gellan gum (see the paragraph bridging columns 5 and 6). See column 6, line 6, wherein carboxymethyl cellulose is exemplified. At column 12, lines 6-8, Qin et al discloses that the crosslinking may be carried out with ionic bonding, resulting, for example, by the use of a polyvalent metal ion crosslinking agent. In the first paragraph of column 13, Qin et al discloses that the crosslinking agent may be selected from a group that include diamines and polyamines. See column 13, 3<sup>rd</sup> paragraph, wherein Qin et al discloses that the crosslinking agent comprises a metal ion that may be selected from a group that include aluminum, iron, and zirconium. Qin et al further discloses examples of crosslinking agents that may be selected from a group that includes  $AlCl_3$  and  $FeCl_3$ , which anticipates the presence of chloride as the anion in a metal salt. In the 4<sup>th</sup> paragraph of column 13, Qin et al explains that the order of mixing the carboxyalkyl polysaccharide, water, and crosslinking agent is not critical when a crosslinking agent is used. In this paragraph, Qin et al discloses that it may be beneficial, when using certain crosslinking agents, to first add the carboxyalkyl polysaccharide and water and then to add the crosslinking agent to the mixture. Qin et al discloses that the recovery of the carboxyalkyl polysaccharide from the mixture may be carried out by various methods that include precipitation. In column 15, 3<sup>rd</sup> paragraph, Qin et al discloses that precipitation of the carboxyalkyl polysaccharide out of the mixture may be carried out using a precipitating agent, such as methanol, ethanol, or acetone. Qin et al further discloses that the recovered carboxyalkyl polysaccharide may be in the form of a fiber (see column 15, line 39-41), which anticipates the production of the polysaccharide fibers of the instant

Art Unit: 1623

claims. In column 16, 3<sup>rd</sup> paragraph, the Qin et al patent discloses a heat-treating process that causes the carboxyalkyl polysaccharide to additionally crosslink, which anticipates the subject matter of instant Claim 12, wherein the claim sets forth a further step of cross-linking the fiber covalently in a following stage. Qin et al discloses that it is believed that the heat-treating process causes the carboxyalkyl polysaccharide to undergo a degree of self-crosslinking, not related to the presence of a crosslinking agent, through the formation of ester linkages. Also see column 16, lines 58 and 59, wherein the Qin et al patent discloses that crosslinking due to the crosslinking agent may occur under both acidic and basic conditions, which anticipates the subject matter of instant Claim 19 wherein the bath is acidic. The above described method of preparing modified polysaccharides in the Qin et al patent anticipates the instantly claimed method of producing polysaccharide fibers.

9. Applicant's arguments with respect to Claims 1, 3-5, 7-12, 19 and 20 have been considered but are moot in view of the new ground(s) of rejection.

10. Claims 13-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Qin et al (US Patent No. 5,550,189, newly cited).

Applicants claim a polysaccharide fiber which has been solvent-spun and has a degree of substitution greater than 0.35, is cross-linked, and insoluble, but swellable, in water. Applicants also claim an absorbent structure in an absorbent article, wherein the absorbent structure includes polysaccharides fibers produced using ionically crosslinking agents. An additional limitation in a dependent claim includes the absorbent article selected from the group consisting of a diaper, an incontinence guard and a sanitary napkin.

The Qin et al patent disclose water-swellaable, water insoluble modified polysaccharide having improved age-stable absorption properties. See column 9, lines 31-35, wherein the Qin et al discloses that the modified polysaccharide is a carboxyalkyl cellulose, which has an average degree of substitution from about 0.3 to about 1.5, which covers the degree of substitution range set forth in the instant claims. Qin et al also discloses that the carboxyalkyl polysaccharide may be obtained in the form of a

Art Unit: 1623

fiber (see column 15, lines 38-41). The method of preparation involves forming a mixture of a modified polysaccharide, water, and a crosslinking agent, recovering the polysaccharide from the mixture, and heat-treating said recovered modified polysaccharide. See column 12, lines 6-8 wherein the cross-linker is an ionically cross-linking agent. The modified polysaccharide of the Qin et al patent anticipates the polysaccharide fiber of the instant claims. Qin et al further discloses the carboxyalkyl polysaccharides as being suitable for use in disposable absorbent garments such as personal care products, such as diapers, training pants, feminine care products, and adult incontinent products, which anticipates the absorbent structure of the instant claims.

11. Applicant's arguments with respect to Claims 1, 3-5, 7-12, 19 and 20 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

12. Claims 1-12 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qin et al (US Patent No. 5,550,189, newly cited) in view of Coull et al (EP 410,323, newly cited).

Applicants claim a method of producing polysaccharides fibers, comprising the steps of dissolving a polysaccharide in a solvent to form a solution, and spraying the solution into a bath, which contains a water-miscible organic solvent and a cross-linker, wherein the solvent dissolving the polysaccharide is water, and wherein the cross-linker ionically cross-links the polysaccharide. Additional limitations in the dependent claims include further steps of stretching, rolling-up, drying and cutting the polysaccharide fibers after the bath; specific organic solvents; specific cross-linkers; the cross-linker being a salt; the cation in the salt having a specific valence, being of a specific metal ion; the metal salt of the cross-linker having a specific anion; the method using specific polysaccharides; the method further comprising cross-linking the fiber covalently; the method wherein the bath is acidic; the method wherein the polysaccharide fibers precipitate in the bath; the method wherein the polysaccharide fibers precipitate in the bath simultaneously with the ionic cross-linking of the polysaccharide.

The Qin et al patent discloses a method for preparing modified polysaccharides having improved absorbent properties, wherein the method involves forming a mixture of a modified polysaccharide, water and a crosslinking agent, and recovering the modified polysaccharide from the mixture. Qin et al discloses that the modified polysaccharides suitable for use in their invention comprise a group that includes carboxylated polysaccharides, wherein the polysaccharides may be selected from a group that include cellulose, starch, and gellan gum (see the paragraph bridging columns 5 and 6). See column 6, line 6, wherein carboxymethyl cellulose is exemplified. At column 12, lines 6-8, Qin et al teaches that the crosslinking may be carried out with ionic bonding, resulting, for example, by the use of a polyvalent metal ion crosslinking agent. In the first paragraph of column 13, Qin et al discloses that the crosslinking agent may be selected from a group that include diamines and polyamines. See column 13, 3<sup>rd</sup> paragraph, wherein Qin et al discloses that the crosslinking agent comprises a metal ion that may be selected from a group that include aluminum, iron, and zirconium. In the 4<sup>th</sup> paragraph of column 13, Qin explains that the order of mixing the carboxyalkyl polysaccharide, water, and crosslinking agent is not critical when a crosslinking agent is used. In this paragraph, Qin et al teaches that it may be beneficial, when using certain crosslinking agents, to first add the carboxyalkyl polysaccharide and water and then to add the crosslinking agent to the mixture. Qin et al discloses that the recovery of the carboxyalkyl polysaccharide from the mixture may be carried out by various methods that include precipitation. In column 15, 3<sup>rd</sup> paragraph, Qin et al discloses that precipitation of the carboxyalkyl polysaccharide out of the mixture may be carried out using a precipitating agent, such as methanol, ethanol, or acetone. Qin et al further discloses that the recovered carboxyalkyl polysaccharide may be in the form of a fiber (see column 15, line 39-41), which embraces the production of the polysaccharide fibers of the instant claims. In column 16, 3<sup>rd</sup> paragraph, the Qin et al patent discloses a heat-treating process that causes the carboxyalkyl polysaccharide to additionally crosslink, which embraces the subject matter of instant Claim 12, wherein the claim sets forth a further step of cross-linking the fiber covalently in a following stage. Qin et al discloses that it is believed that the heat-treating process causes the carboxyalkyl



Art Unit: 1623

polysaccharide to undergo a degree of self-crosslinking, not related to the presence of a crosslinking agent, through the formation of ester linkages. Also see column 16, lines 58 and 59, wherein the Qin et al patent discloses that crosslinking due to the crosslinking agent may occur under both acidic and basic conditions, which embraces the subject matter of instant Claim 19 wherein the bath is acidic. The instant claims differ from the Qin et al patent by claiming a method wherein the cross-linker is polyvinylamine or Polybrene. The Coull patent shows that use of polyvinylamine with a cellulose product is well known in the art. See the Derwent Abstract of the EP 410,323 wherein polyvinylamine may be used as the polymer to crosslink onto a microporous membrane surface, which may be selected as cellulose acetate.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the crosslinking agents used to crosslink the modified polysaccharide of the Qin et al patent with polyvinylamine in view of the recognition in the art, as evidenced by the Coull et al patent, that polyvinylamine is effective in preparing a cellulose crosslinked product which provides an efficient and cost effective way for preparing an immunoadsorbent.

One of ordinary skill in this art would combine the teachings of the Qin et al patent with the teachings of the Coull et al patent since both patents set forth process steps for preparing crosslinked cellulose products.

13. Applicant's arguments with respect to Claims 1-12 and 19-21 have been considered but are moot in view of the new ground(s) of rejection.

#### ***References Showing the State of the Art***

14. Kucera et al (US Patent No. 4,257,903) and Huang et al (US Patent No. 5,532,221), both of which set forth ionically crosslinked polysaccharides, are cited to further show the state of the art.

#### ***Summary***

15. Claims 1-16 and 19-21 are rejected.

Art Unit: 1623

***Examiner's Telephone Number, Fax Number, and Other Information***

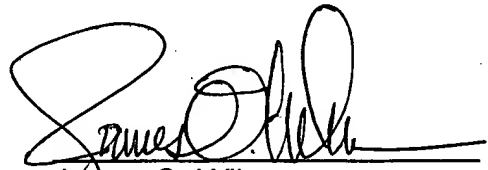
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Everett White whose telephone number is (703) 308-4621. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson, can be reached on (703) 308-4624. The fax phone number for this Group is (703) 308-4556.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1235.

  
E. White

  
James O. Wilson  
Supervisory Primary Examiner  
Technology Center 1600